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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/687,424	10/16/2003	Jhon Jhy Liaw	24061.39 / TSMC2002-0030	8019
42717	7590	01/19/2006	EXAMINER	
HAYNES AND BOONE, LLP 901 MAIN STREET, SUITE 3100 DALLAS, TX 75202			CHEN, KIN CHAN	
			ART UNIT	PAPER NUMBER
			1765	
DATE MAILED: 01/19/2006				

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/687,424

Applicant(s)

LIAW, JHON JHY

Examiner

Kin-Chan Chen

Art Unit

1765

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 December 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-7, 9-12 and 25-37 is/are pending in the application.
- 4a) Of the above claim(s), 35-37 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-7, 9-12 and 25-34 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

1. Newly submitted claims 35-37 are directed to an invention that is independent or distinct from the invention originally claimed for the following reasons:

This application contains claims directed to the following patentably distinct species of the claimed invention:

I. forming a gate electrode (conductive material) over the active layer (claims 1-7, 9-12, and 25-34).

II. forming a dielectric material (non-conductive material) over the active layer (claims 35-37).

Applicant is required under 35 U.S.C. 121 to elect a single disclosed species for prosecution on the merits to which the claims shall be restricted if no generic claim is finally held to be allowable.

Since applicant has received an action on the merits for the originally presented invention, this invention has been constructively elected by original presentation for prosecution on the merits. Accordingly, claims 35-37 are withdrawn from consideration as being directed to a non-elected invention. See 37 CFR 1.142(b) and MPEP § 821.03.

Claim Rejections - 35 USC § 112

2. Claims 25-34 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 25-34 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 25, line 4, "a dielectric layer located on the dielectric layer" is vague and indefinite. It is unclear what differentiates these two dielectric layers.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

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(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 2 and 10 are rejected under 35 U.S.C. 102(b) as being anticipated by S.Wolf (Silicon Processing for the VLSI Era, vol. 2, pages 354-355) as evidenced by Merriam-Webster's collegiate dictionary (page 827).

S.Wolf discloses that a substrate having an active layer, a dielectric layer and a structural layer may be provided. An opening may be formed through the active layer. A surface of the dielectric layer may be exposed and the active layer sidewalls are defined. A spacer (e.g., oxide) covering a first portion of the exposed dielectric layer surface may be formed and substantially spanning one of the active layer sidewalls. A gate electrode may be formed **over** the active layer. "over" is interpreted as a position higher than or above another layer, see Merriam-Webster's collegiate dictionary (page 827). As to dependent claim 2, see Fig. 5-30 also.

5. Claims 1, 9 and 10 are rejected under 35 U.S.C. 102(b) as being anticipated by Sun et al. (US 6,150,286) as evidenced by Merriam-Webster's collegiate dictionary (page 827).

Sun (col. 5, line 48 through col. 6; Figures) discloses that a substrate having an active layer, a dielectric layer and a structural layer may be provided. An opening may be formed through the active layer and a surface of the dielectric layer may be exposed and the active layer sidewalls are defined. A silicide may be formed over the active layer. A spacer (e.g., oxide) covering a first portion of the exposed dielectric layer

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surface may be formed and substantially spanning one of the active layer sidewalls. A gate electrode may be formed **over** the active layer. "over" is interpreted as a position higher than or above another layer, see Merriam-Webster's collegiate dictionary (page 827).

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 3-7, 9, 11, and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over S.Wolf (Silicon Processing for the VLSI Era, vol. 2, pages 354-355) as evidenced by Merriam-Webster's collegiate dictionary (page 827).

S.Wolf discloses that a substrate having an active layer, a dielectric layer and a structural layer may be provided. An opening may be formed through the active layer. a surface of the dielectric layer may be exposed and the active layer sidewalls are defined. A spacer covering a first portion of the exposed dielectric layer surface may be formed and substantially spanning one of the active layer sidewalls. A gate electrode may be formed **over** the active layer. "over" is interpreted as a position higher than or above another layer, see Merriam-Webster's collegiate dictionary (page 827).

In the semiconductor device fabrication, it would have been obvious to one with ordinary skill in the art to clean the surface of layer between the process steps using conventional methods in order to remove any contamination and etching residues. The above cited claims differ from the prior art by specifying well-known features or conventional methods (such as wet cleaning in claim 4, plasma cleaning in claims 5 and 6, vapor cleaning in claim 7, forming silicide over the active layer in claim 9, active layer may comprise strained silicon in claim 11) to the art of semiconductor device fabrication, the examiner takes official notice. A person having ordinary skill in the art would have found it obvious to modify the prior art by adding any of same well-known features (conventional methods) to same in order to provide their art recognized advantages and produce an expected result with a reasonable expectation of success. It is noted that applicant did not traverse the aforementioned conventionality (e.g., well-known features, common knowledge, or conventional methods), which have been stated in the previous office action (September 6, 2005). As such, they are taken to be admitted prior art, see MPEP 2144.03).

Dependant claim 12 differs from the prior art by specifying various dimensions (thicknesses). Because same are merely a matter of choices of design depending on the product requirements, it would be obvious to one skilled in the art to use various dimensions in order to accommodate the specific product design and meet the product requirement.

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8. Claims 3-7, 11 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sun et al. (US 6,150,286; col. 5, line 48 through col. 6; Figures) as evidenced by Merriam-Webster's collegiate dictionary (page 827).

Sun discloses that a substrate having an active layer, a dielectric layer and a structural layer may be provided. An opening may be formed through the active layer and a surface of the dielectric layer may be exposed and the active layer sidewalls are defined. A spacer covering a first portion of the exposed dielectric layer surface may be formed and substantially spanning one of the active layer sidewalls. A gate electrode may be formed **over** the active layer. "over" is interpreted as a position higher than or above another layer, see Merriam-Webster's collegiate dictionary (page 827).

In the semiconductor device fabrication, it would have been obvious to one with ordinary skill in the art to clean the surface of layer between the process steps using conventional methods in order to remove any contamination and etching residues. The above cited claims differ from the prior art by specifying well-known features or conventional methods (such as wet cleaning in claim 4, plasma cleaning in claims 5 and 6, vapor cleaning in claim 7, active layer may comprise strained silicon in claim 11) to the art of semiconductor device fabrication, the examiner takes official notice. A person having ordinary skill in the art would have found it obvious to modify the prior art by adding any of same well-known features (conventional methods) to same in order to provide their art recognized advantages and produce an expected result with a reasonable expectation of success. . It is noted that applicant did not traverse the aforementioned conventionality (e.g., well-known features, common knowledge, or

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conventional methods), which have been stated in the previous office action (September 6, 2005). As such, they are taken to be admitted prior art, see MPEP 2144.03).

Dependant claim 12 differs from the prior art by specifying various dimensions (thicknesses). Because same are merely a matter of choices of design depending on the product requirements, it would be obvious to one skilled in the art to use various dimensions in order to accommodate the specific product design and meet the product requirement.

Response to Arguments

9. Applicant's arguments filed December 12, 2005 have been fully considered but they are not persuasive.

Applicant has argued that prior art does not teach forming a gate electrode over the active layer. It is not persuasive. As has been stated in the office action, prior art teaches that a gate electrode may be formed **over** the active layer. "over" is interpreted as a position higher than or above another layer, see Merriam-Webster's collegiate dictionary (page 827).

Applicant has argued that the prior art does not teach **all limitations of the claim**. It is not persuasive. The examiner would like to remind applicant that mere reiteration of claim recitation (e.g., the prior art does not teach all limitations) does not constitute an argument (a complete response) within the meaning of 37 CFR 1.192(c)

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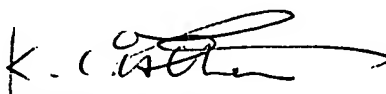
(7)(8). The argument needs to specify the errors in the rejection and the specific limitations in the rejected claims which are not described in the prior art relied upon in the rejection, and an explanation how such limitations render the claimed subject matter unobvious over the prior art.

Conclusion

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Merriam-Webster's collegiate dictionary (page 827) described that "over" is used to indicate a situation in a position higher than or above another.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kin-Chan Chen whose telephone number is (571) 272-1461. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nadine Norton can be reached on (571) 272-1465. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

January 17, 2006


KIN-CHAN CHEN
PATENT EXAMINER
AU 1765